

No. 683,338.

Patented Sept. 24, 1901.

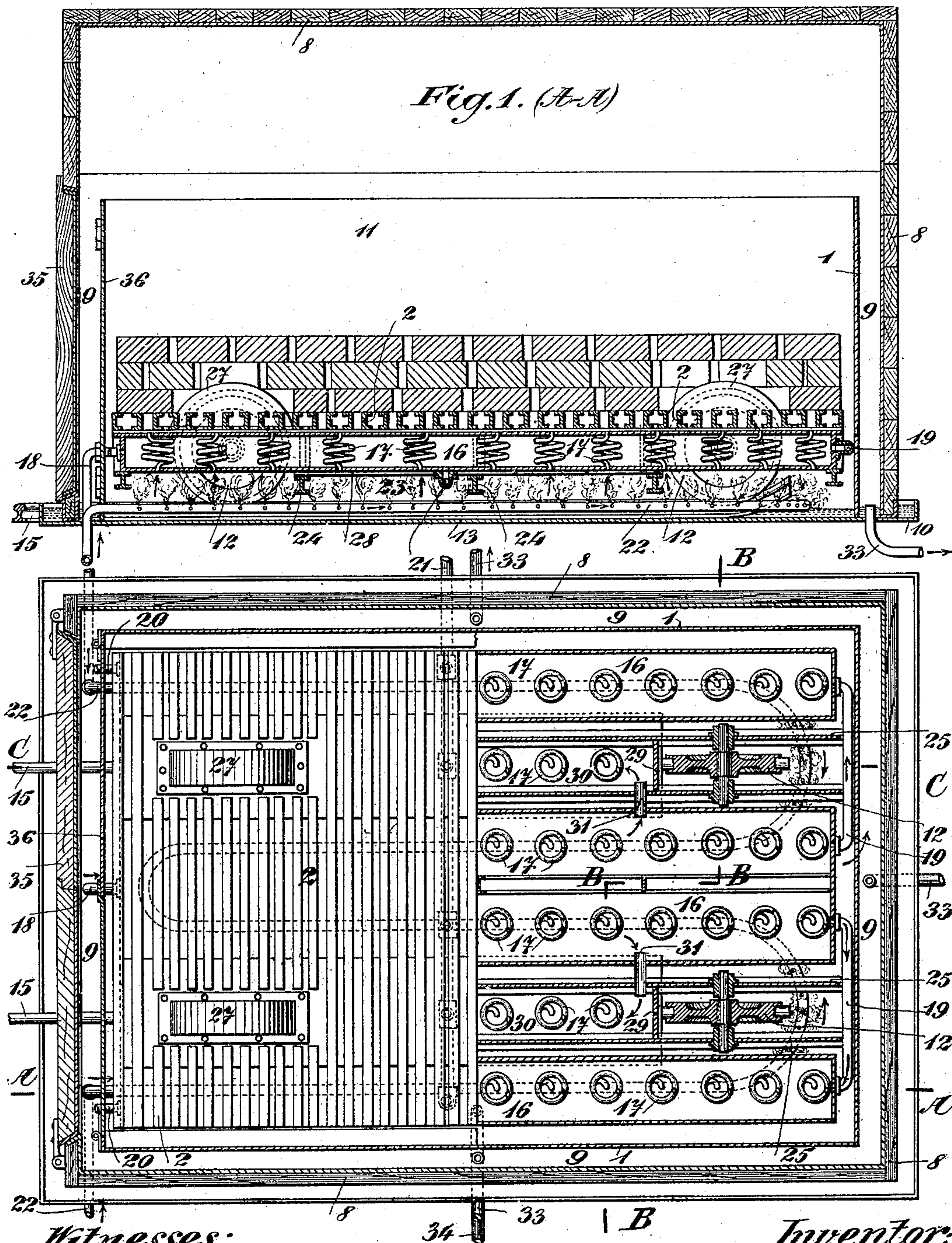
W. SCHULTHESS.

APPARATUS FOR THE PRODUCTION OF COMPRESSED ARTIFICIAL SANDSTONE.

(Application filed June 4, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

W. H. M.

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Fig. 3.

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Fig. 2. (B-B)

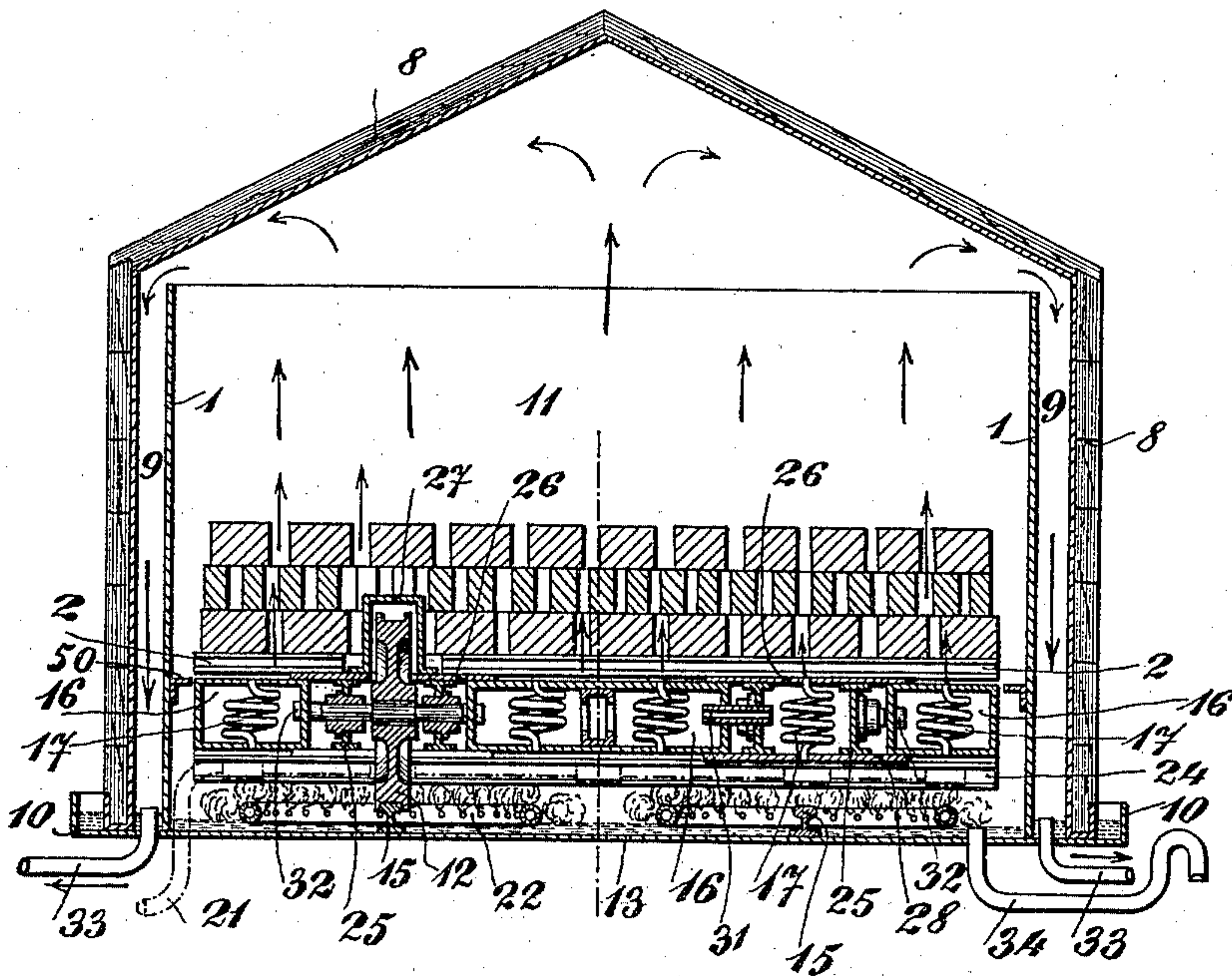
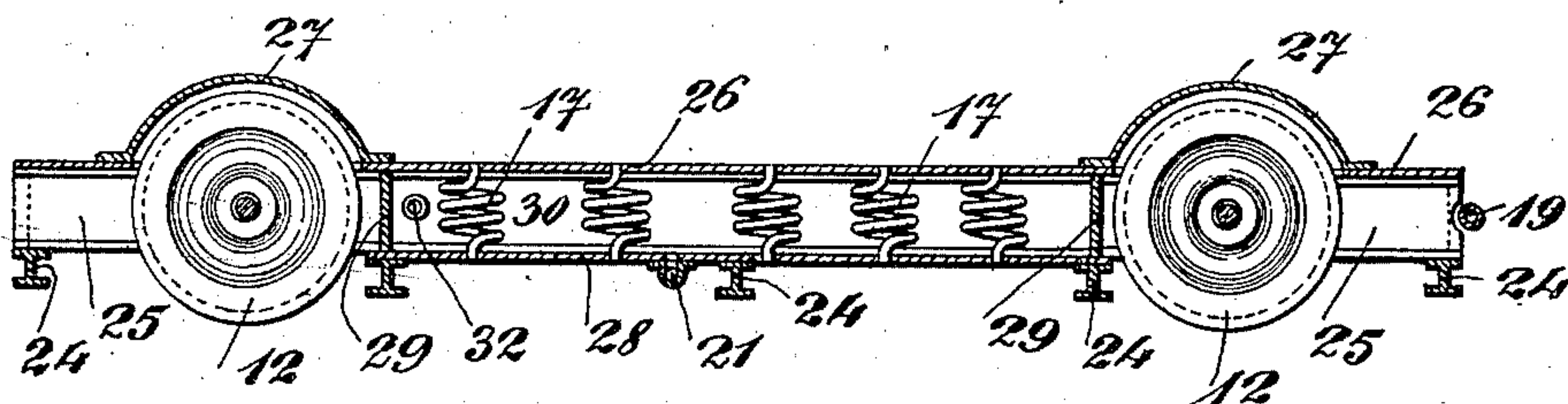


Fig. 4. (C-C)



Witnesses:

Attest

W. Summers

Inventor:

Walter Schulthess.

by *James M. Dyer*

UNITED STATES PATENT OFFICE.

WALTER SCHULTHESS, OF ZURICH, SWITZERLAND.

APPARATUS FOR THE PRODUCTION OF COMPRESSED ARTIFICIAL SANDSTONE.

SPECIFICATION forming part of Letters Patent No. 683,338, dated September 24, 1901.

Original application filed June 23, 1899, Serial No. 721,666. Divided and this application filed June 4, 1900. Serial No. 19,060. (No model.)

To all whom it may concern:

Be it known that I, WALTER SCHULTHESS, a citizen of the Republic of Switzerland, residing at Zurich, Switzerland, have invented certain new and useful Improvements in Apparatus for the Production of Compressed Artificial Sandstone, (for which I have filed patents in Hungary on the 26th of May, 1899, application No. 7,947; in Great Britain on the 24th of May, 1899, No. 10,904; in Austria on the 15th of May, 1899; in Germany on the 15th of May, 1899; in France on the 15th of May, 1899, application No. 276,800; in Belgium on the 15th of May, 1899, application No. 112,051, and in Italy on the 15th of May, 1899;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

My invention has relation to the art of manufacturing artificial stone, and more especially to the manufacture of artificial stone composed of a silicate and calcium in the form of sand and pulverized slaked lime.

This invention consists in an apparatus for carrying out the process described in my application for patent filed June 23, 1899, Serial No. 721,666, of which the present application is a division.

That my invention may be fully understood I will describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of said apparatus on the line A A of Fig. 3. Fig. 2 is a cross-section on line B B of said Fig. 3 looking from right to left. Fig. 3 is a horizontal section taken in part on a line above the truck and in part on a line through the truck body or platform, and Fig. 4 is a longitudinal section through said truck on line C C of Fig. 3.

The apparatus comprises a housing 8, constructed of a material that is a poor conductor of heat, and is provided with a gable-roof and lined throughout with sheet metal, said roof serving to direct the water of condensa-

tion to the vertical walls and thence to the floor 13 of the housing. The floor 13 is preferably made of sheet metal laid on a suitable foundation (not shown) and is longer and wider than the housing 8, which is merely set thereon, and said floor has a vertical encompassing flange 10, so as to hold sufficient water within and about the said housing to form a seal at the foot thereof, the excess of water being drained from within the housing and from the encompassing channel through gooseneck pipes 34 and 33, respectively.

The housing 8 has a gate 35 and is divided by a casing 1, open at top, into two concentric chambers 9 and 11, the latter chamber constituting the steaming-chamber and the former a mere encompassing channel to conduct the water of condensation to the floor 13, said internal chamber 11 being provided with a gate 36, facing the gate 35 of housing 8.

On the floor 13 are laid track-rails 15 for the wheels 12 of a truck, on which the green previously-molded blocks of sandstone are piled, preferably on cross-rails 2, U-shaped in cross-section, said rails and the blocks piled thereon being suitably spaced to form passages for the superheated steam issuing from the truck platform or body, as herein-after explained. The body or platform of the truck is of slightly less length and width than the length and width of the chamber 11, to the vertical walls of which are secured angle-plates 50, Fig. 2, which, together with said platform, serve to divide the casing 1 into the steaming-chamber 11 above the truck and into a steam-receiving chamber 23 below said truck, said angle-plates 50 fitting around the truck-platform sufficiently close to prevent as much steam as possible from escaping from the chamber 23 around said platform. In the chamber 23 are arranged perforated coils of pipe 22, whose terminals are connected with a suitable source of low-pressure steam-supply for supplying steam of a temperature of about 100° to chamber 23. The truck-body is a sheet-metal casing, the lower or bottom plate or plates 28 of which are secured to cross-girders 24, carried by longitudinal girders 25. The truck-platform is divided longitudinally by vertical parti-

tions into superheating-chambers 16, a similar chamber 30 being formed on the line of the wheels 12 between each pair of such. In said chambers 16 and 30 are arranged superheating-coils 17, whose terminals are secured in the upper and lower platform-plates 26 and 28 and open into the receiver-chamber 23 and steaming-chamber 11, the wheels 12, which project above the truck-body, being housed in at top, as shown at 27, and have their bearings in the longitudinal girders 25, which also serve as partition-walls for the contiguous superheating-chambers 16, as clearly shown in Fig. 3. The chambers 16 are connected in pairs by pipes 19, while the chambers 30 are connected with contiguous chambers 16 by pipes 31, a heating medium of a sufficiently higher temperature to superheat the steam as it flows from chamber 23 through coils 17 into chamber 11 being supplied to the central chambers 16 through pipe 18, whence it flows through pipes 19 to the outer chambers and through pipes 31 to the chambers 30 and out of said outer chambers 16 through pipes 20, there being an auxiliary supply-pipe 21 in communication with the superheating chambers to supply the same with a superheating fluid.

The operation of the described apparatus may be briefly described as follows: Steam at atmospheric pressure, and hence at a temperature of 100° centigrade or below, according to the altitude at which the process is carried out, is supplied to chamber 23 and a superheating medium to the chambers 16 and 30. The steam as it flows through the coils 17 becomes superheated without increasing its pressure and flows from the coils among the green blocks of artificial sandstone composition, reacting upon their constituents to form calcium silicate, and thereby bind said constituents.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In apparatus such as described, the combination with a steaming-chamber, of a chambered platform for the artificial-stone compound, means for causing a superheating fluid to circulate through said platform, superheating-pipes extending therethrough and means for causing steam to flow through said pipes into the aforesaid chamber, for the purpose set forth.

2. In apparatus such as described, the combination with a steaming-chamber, a chambered wheeled platform for the artificial-stone compound, means for causing a heating fluid to circulate through said platform, open-ended superheating-pipes extending therethrough and means causing steam to flow through said pipes into the aforesaid chamber, for the purposes set forth.

3. In apparatus such as described, the combination with a steaming-chamber, a chambered platform for the artificial-stone compound, means for causing a heating fluid to

circulate through said platform, a steam-receiver below the same and superheating-pipes extending through the platform and opening into said receiver and into the aforesaid chamber, for the purposes set forth.

4. In apparatus such as described, the combination with a steaming-chamber, a platform for the artificial-stone compound divided longitudinally into a plurality of superheating-chambers, means for causing a heating fluid to circulate through said chambers, superheating-coils therein opening at one end into the steaming-chamber, and means for supplying steam to the opposite end of said coils, for the purpose set forth.

5. In apparatus such as described, the combination with a steaming-chamber, a wheeled platform for the artificial-stone compound divided longitudinally into superheating-chambers, means causing a heating fluid to circulate therethrough, a steam-receiver below said platform and superheating-coils in said superheating-chambers opening into the receiver and into the steaming-chamber, for the purposes set forth.

6. In apparatus such as described, comprising an outer closed chamber provided with a suitable gate, an inner chamber open at top and bottom concentric with said outer chamber and having a gate in line with that of the outer chamber, and a base on which both chambers rest having an encompassing flange outside of the outer chamber; in combination with a chambered raised platform in the inner chamber, means for causing a heating fluid to circulate through said platform, a steam-receiver below the same, and superheating-coils contained in the platform and opening into said receiver and into the aforesaid inner chamber, for the purpose set forth.

7. In apparatus such as described comprising an outer closed chamber provided with a gate, an inner chamber open at top and bottom concentric with the outer chamber and having a gate in line with the gate of said outer chamber, a base on which said chambers rest, having an encompassing flange outside of the outer chamber; in combination with a chambered wheeled platform adapted to be run into the inner chamber, means for causing a heating fluid to circulate through the platform, a steam-receiver below the same, and superheating-pipes contained in said platform and opening into the inner chamber and into said receiver, for the purpose set forth.

8. In apparatus such as described, comprising an outer chamber open at bottom, an open-ended inner chamber having baffle-plates secured to its vertical walls at a certain height, a base on which said chambers rest, provided with an encompassing flange outside the outer chamber, means for draining the inner chamber, a space between it and the outer chamber and the channel around the same, and a coil of perforated pipe on the base within the inner chamber; in combination with a wheeled truck adapted to be run into said in-

ner chamber between the aforesaid baffle-plates to form a steam-receiver below the truck-body, the latter being chambered, means for supplying a heating fluid to said
5 truck-body, and superheating-pipes contained in the truck-body and opening into the spaces above and below the same.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

WALTER SCHULTHESS.

Witnesses:

MORITZ VEITH,
A. M. LIEBERKNECHT.